

Probing The Universe —

Rocket Fuel Developed Here

Shades of some of the old alchemists who mixed their mysterious compounds in the romantic Middle Ages must be hovering close these days over the shoulder of a young Phoenix scientist.

Instead of the old philosopher's stone," which was supposed to have the energy to change such base metals as lead into gold, this alchemical scientist is using ultrasonics—the new science of sound you can't hear.

Already he has knocked into a cocked hat the good old saying that "water and oil will not mix."

More than that, by applying this new science he has conceived and patented a formula for jet and rocket fuel that in laboratory tests has afforded a 30 per cent power boost by transforming into usable form the fuel parts now wasted.

Experienced Scientist

The Phoenix inventor, James S. Downard, is not new to test tubes and patient laboratory work.

Ever since he was a young child Downard was the confidante and helper of his father, the late J. S. Downard of Fort Thomas, Ky., a petroleum and asphalt expert who held 25 patents at his death. Several of them were basic.

With the technical help of engineers Robert Anderson, formerly head of Goodyear electronic research here, and John Battafarano, both of Radio Electronics Development Co., Phoenix, Downard now has his own modern philosopher's stone of fiction—an ultrason.

This electrical device is only one of many which have complete-
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PULSATING AT more than 450,000 times a second this ultrason—the modern philosopher's stone—is being used by James S. Downard of Phoenix to conduct his experiments on his patented formula for rocket fuel.

Phoenician

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ly upset the original belief that elements are permanently unchangeable.

Some of the others, to name a few, are the cyclotron, synchrocyclotron, betatron, synchrotron, linear accelerator and electrostatic generator.

Agitate Matter

The ultrason Downard said, is the first being put to commercial use.

Very simply, it sends out very high frequency sound waves that create such a powerful acceleration or agitation in nearby matter that its molecules are torn apart.

In case your chemistry has slipped a little, a molecule is a group of atoms held together tightly by electrical attraction to form the basic unit of a compound—such as a molecule of water which is two atoms of hydrogen and one of oxygen.

By electromagnetically producing sound waves of extremely high frequency, this electrical cohesion in the molecule is destroyed. Downard said by controlling this upset, it is possible to start out with one material and end up with another entirely different one.

Little did the average citizen who blew a "soundless whistle" to call his dog, realize that the same discovery would be projected some day to practically every facet of commercial activity.

It can homogenize and sterilize milk, permanently mix paints, recover pure metal from ore and degas metal while it is in a molten state, thus making stronger castings, especially in the case of aluminum.

Potential Uses

These high frequency waves, which in laboratories have been lethal to small animals, fish and frogs, can separate protoplasm from the cell wall which may lead to creation of synthetic chlorophyll, the biologists dream.

If a way can be found to keep the tin on cans, food can be sealed inside, then sterilized in vast quantities.

Just as radio-active substances received first acclaim by the medical profession, so will the products of the ultrason which can put in solution substances that up until now were though impossible.

Celiac children (incapable of absorbing vitamin A), premature infants and people with damaged livers can look forward to the vitamin available in an aqueous medium readily absorbed into the system through ultrasonics.

Still a laboratory trick is that of making metals soluble in water.

The human ear responds to sound vibrations up to 20,000 a second, but the dog's ear is tuned up to receive 35,000 a second.

Downard's ultrason, by application of 150,000-volt current to quartz crystals, pulsates more than 450,000 times a second.

Reportedly some devices vibrate at 3,500,000 times a second and scientists cannot predict how high they may ultimately go.

Part of the secret to Downard's new fuel formula is completely integrating the content of oil and water by tearing down the molecular structure and making the two into a new compound before it is fed into the combustion chamber of rockets.

The molecules are rearranged for better combustability but the same fuel values remain.

In Phoenix he is only one of many experimenters over the nation who, realizing that chemistry as we have known it no longer exists, are prying into the very secrets of creation itself.